



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,680	10/15/2003	Takahito Kouou	58647-170	3399

7590 05/24/2007
McDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

HOEKSTRA, JEFFREY GERBEN

ART UNIT	PAPER NUMBER
----------	--------------

3736

MAIL DATE	DELIVERY MODE
-----------	---------------

05/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

#

Office Action Summary	Application No. 10/684,680	Applicant(s) KOUOU ET AL.	
	Examiner Jeffrey G. Hoekstra	Art Unit 3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☐ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application |
| 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) ☐ Other: _____ |

DETAILED ACTION

Notice of Amendment

1. In response to the amendment filed on 03/06/2007, the following reiterated grounds of rejection are set forth:

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 2-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Richardson et al (US 6,185,451). Richardson et al discloses a muscle function assessment apparatus (1) as broadly as claimed, comprising:

- an input unit (8) for inputting individual physical data;
- a bioelectric impedance measuring unit (3) that measures bioelectric impedance;
- a load setting unit (18) that imposes a load based on a calculated maximum voluntary contraction (column 9 lines 21-35);
- a muscle data measuring unit (column 3 line 51 - column 4 line 9, column 5 lines 2-5 and lines 21-32) for measuring a subject's mechanomyographic activity (the mechanical vibrations arising from muscular contraction) that may receive data from vibrational measuring apparatus (12 and 20); and
- a processing, calculating, and determining unit (the processor 5 operating with specific programming including algorithms) that is capable of
 - measuring and analyzing the mechanomyogram under load conditions,

- calculating a muscle volume between portions to be measured of a subject from the individual physical data and the bioelectric impedance,
 - calculating a maximum voluntary contraction based on calculated muscle volume,
 - determining the muscular force utilized by analyzing amplitudes and average frequency, and
 - determining proportions of types of muscles measured in portions of a subject.
4. For claim 4, Richardson et al discloses the processing/determining unit differentiating between slow-twitch or deep muscles and fast-twitch or superficial muscle fibers (column 3 line 23 – column 4 line 5).

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson et al in view of Moss (US 4,688,581).
7. For claim 5, Richardson et al discloses the claimed muscle measuring apparatus except for the determining unit differentiating between SO (slow-twitch), FOG (fast-twitch) and FG (fast-twitch) fibers based on biochemical metabolic characteristics. Moss discloses an apparatus for noninvasive in vivo differentiation and evaluation of both slow- and fast- twitch muscle fibers based on electrical potentials arising from differences in biochemical metabolic fluxes (column 1 line 65 – column 2 line 18). It

would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as taught by Richardson et al, with Moss for the purpose of increasing the efficacy of a muscle measuring apparatus for providing an increased quality of data.

8. For claim 6, Richardson et al discloses the claimed muscle measuring apparatus except for explicitly disclosing a step-wise loading stimulus. Moss discloses a muscle fiber measuring apparatus that adjusts the loading stimulus in a step-wise manner (column 2 lines 64-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as taught by Richardson et al, with Moss for the purpose of increasing the efficacy of a muscle measuring apparatus for providing an increased quality of data.

9. For claim 7, Richardson et al discloses the claimed muscle measuring apparatus including muscular strength detecting unit (9), display unit (6) displaying the difference in muscular strength, and processing/control unit (5) calculating the difference between the loaded condition and muscular contraction.

10. For claim 8, Richardson et al discloses the subsequent use of the muscle measuring apparatus to determine and track the occurrence of muscular improvement or fatigue by comparing equivalent data sets taken at different times (column 2 lines 45-48).

Response to Arguments

11. Applicant's arguments filed 03/06/2007 have been fully considered but they are not persuasive. Applicant argues the anticipatory rejection of claims 2 and 3 under

Richardson et al, specifically arguing Richardson et al does not disclose, teach, or fairly suggest (a) the determining unit that “determines the proportions of types of muscles in measured portions of a subject based on an amplitude and a frequency derived from the measured mechanomyogram data” and (b) the calculation unit that “calculates a muscle volume between portions to be measured of a subject”.

12. In response to applicant's arguments (a) and (b), a recitation of the intended use of the claimed invention must result in a *structural* difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

13. In this case regarding (a), Richardson discloses a determining unit capable of differentiating, via a determining unit operating with a programmed algorithmic analysis, between the proportions of types of muscles in measured portions of a subject that differentiates between muscle volumes based on load conditions, muscle type (e.g. deep muscle contraction and/or superficial muscle contraction), muscle isolation, and/or combinations thereof (column 5 lines 10-44) and by analyzing the amplitude and frequency of muscle contractions (column 6 line 51 – column 7 line 46) (as best seen in Figures 3, 15C, 17, 19, and 20).

14. In this case regarding (b), Richardson discloses a calculating unit capable of calculating, via a calculation unit operating with a programmed algorithmic analysis, a muscle volume between portions to be measured of a subject (column 8 lines 21-61)

(as best seen in Figure 3) wherein correlations are drawn between different muscle groups of superficial and deep muscle activity.

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

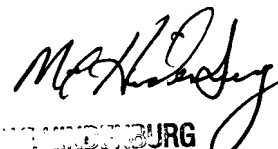
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey G. Hoekstra whose telephone number is (571)272-7232. The examiner can normally be reached on Monday through Friday, 8:00 a.m. to 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max F. Hindenburg can be reached on (571)272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3736

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/J.H./
Jeff Hoekstra
Examiner, Art Unit 3736


JEFF HOEKSTRA
PATENT EXAMINER
TECHNOLOGY CENTER 3700